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USPN: 09/884,792

### IN THE CLAIMS

1. (Withdrawn) An array hybridization chamber for receiving at least one array to be hybridized, comprising:
  - a bottom surface;
  - at least one adjustable spacing element within the chamber to adjust a spacing between the bottom surface and the array between first and second positions in which a film of fluid can and cannot, respectively, be held by surface tension between the array and bottom surface.
2. (Withdrawn) The array hybridization chamber according to claim 1 additionally comprising a cover movable between a closed position to retain fluid in the chamber, and an open position in which the array can be inserted or removed from the chamber.
3. (Currently Amended) An array hybridization chamber comprising:
  - a. a bottom surface for receiving at least one array to be hybridized and a cover operatively associated with said bottom surface, wherein said cover forms a sealed enclosure with said bottom surface when in a closed position,
  - b. at least one adjustable spacing element positioned on said bottom surface for adjusting the spacing between said at least one array and said bottom surface and said cover when said bottom surface and said cover are operatively associated,
  - ~~c. a cover operatively associated with said bottom surface, wherein said cover forms a sealed enclosure with said bottom surface when in a closed position, and~~
  - g. d. at least one fluid port for delivering and/or removing fluid from said chamber.
4. (Original) The array hybridization chamber according to claim 3, wherein said chamber comprises at least two adjustable spacing elements.

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5. (Original) The array hybridization chamber according to claim 3, wherein said cover is operatively associated with said substantially planar bottom surface by a hinge.
6. (Original) The array hybridization chamber according to claim 3, wherein said cover forms a substantially vapor tight seal with said substantially planar bottom surface when in a closed position.
7. (Original) The array hybridization chamber according to claim 3, further comprising at least one mixing element for mixing the contents of said chamber.
8. (Original) The array hybridization chamber according to claim 7, wherein said at least one mixing element is selected from the group consisting of at least one resistor, ultrasonic element, recirculation pump, at least one roller, at least one adjustable spacing element and at least one solenoid.
9. (Original) The array hybridization chamber according to claim 3, further comprising a temperature regulation system for monitoring and controlling the temperature of said chamber.
10. (Original) The array hybridization chamber according to claim 9, wherein said temperature regulation system is selected from the group consisting of a thermo-electric means, a thermo-fluidic means and a heating/cooling block.
11. (Canceled)
12. (Currently Amended) The array hybridization chamber according to claim 37-41, wherein said micro-channels define discrete locations on said substantially planar bottom surface.
13. (Canceled)

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14. (Currently Amended) The array hybridization chamber according to claim ~~38~~ 43, wherein said at least one drying element comprises at least one gas jet.

15. (Original) The array hybridization chamber according to claim 3, further comprising a system for automating at least a portion of said array hybridization chamber.

Claims 16 –32. (Canceled)

33. (Previously Presented) A system for array hybridization, said system comprising:

- (a) a hybridization station, and
- (b) at least one hybridization chamber according to claim 3.

34. (Original) The system according to claim 33, wherein said system further comprises an automation system for automating at least a portion of a hybridization process.

35. (Previously Presented) An array hybridization chamber according to Claim 3, further comprising an array.

36. (Previously Presented) The system according to Claim 33, further comprising an array.

37. (New) An array hybridization chamber comprising:
- a. a bottom surface for receiving at least one array to be hybridized and comprising a plurality of micro-channels for introducing a plurality of biological samples into said chamber, such that said plurality of samples remain segregated from each other,
  - b. at least one adjustable spacing element for adjusting the spacing between said at least one array and said bottom surface,
  - c. a cover operatively associated with said bottom surface, wherein

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said cover forms a sealed enclosure with said bottom surface when in a closed position, and  
d. at least one fluid port for delivering and/or removing fluid from said chamber.

38. (New) The array hybridization chamber according to claim 37, wherein said chamber comprises at least two adjustable spacing elements.
39. (New) The array hybridization chamber according to claim 37, wherein said cover is operatively associated with said substantially planar bottom surface by a hinge.
40. (New) The array hybridization chamber according to claim 37, wherein said cover forms a substantially vapor tight seal with said substantially planar bottom surface when in a closed position.
41. (New) The array hybridization chamber according to claim 37, further comprising at least one mixing element for mixing the contents of said chamber.
42. (New) The array hybridization chamber according to claim 41, wherein said at least one mixing element is selected from the group consisting of at least one resistor, ultrasonic element, recirculation pump, at least one roller, at least one adjustable spacing element and at least one solenoid.
43. (New) The array hybridization chamber according to claim 37, further comprising a temperature regulation system for monitoring and controlling the temperature of said chamber.
44. (New) The array hybridization chamber according to claim 43, wherein said temperature regulation system is selected from the group consisting of a thermo-electric means, a thermo-fluidic means and a heating/cooling block.
45. (New) An array hybridization chamber comprising:

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- a. a bottom surface for receiving at least one array to be hybridized,
- b. at least one adjustable spacing element for adjusting the spacing between said at least one array and said bottom surface,
- c. a cover operatively associated with said bottom surface, wherein said cover forms a sealed enclosure with said bottom surface when in a closed position,
- d. at least one fluid port for delivering and/or removing fluid from said chamber, and
- e. at least one drying element for drying said at least one array.

46. (New) The array hybridization chamber according to claim 45, wherein said chamber comprises at least two adjustable spacing elements.

47. (New) The array hybridization chamber according to claim 45, wherein said cover is operatively associated with said substantially planar bottom surface by a hinge.

48. (New) The array hybridization chamber according to claim 45, wherein said cover forms a substantially vapor tight seal with said substantially planar bottom surface when in a closed position.

49. (New) The array hybridization chamber according to claim 45, further comprising at least one mixing element for mixing the contents of said chamber.

50. (New) The array hybridization chamber according to claim 49, wherein said at least one mixing element is selected from the group consisting of at least one resistor, ultrasonic element, recirculation pump, at least one roller, at least one adjustable spacing element and at least one solenoid.

51. (New) The array hybridization chamber according to claim 45, further comprising a temperature regulation system for monitoring and controlling the temperature of said chamber.

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52. (New) The array hybridization chamber according to claim 51, wherein said temperature regulation system is selected from the group consisting of a thermo-electric means, a thermo-fluidic means and a heating/cooling block.